

Economy Team: Developing Options to Raise the Capital Needed to Build the H₂HNet.



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- **Two basic options:**
 - Private funding
 - Public funding
- **Financing tools:**
 - Market-based mechanisms
 - Mandates
 - Cross subsidies
 - Direct/New subsidies
 - Non-Profit contributions
 - Other



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Tool Box Matrix

	Private Resources	Public Resources
Market-based Concepts	X	
Mandates	X	X
Cross-Subsidies		X
Direct / New Subsidies		X
Non-Profit Contributions	X	
Other	X	X



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We Looked First at Market-Based Mechanisms to Attract Private Capital

- **Avoid additional taxpayer burden**
- **Engage the private actors who will be stakeholders in a hydrogen economy**
 - **Auto Companies**
 - **Energy Companies**
 - **Utilities**
 - **Technology Development Companies**
- **Case for private investment is very difficult given anticipated pace of market development**



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Financing the H₂HNet Will Require a Combination of Private and Public Funding Mechanisms.

- **Fairness:** The benefits of the H₂HNet are *public* as well as private.
 - Lower emissions, reduced depletion of geopolitically sensitive resources
- **Pushing the Envelope:** Market-based mechanisms need to be supplemented with public financing if California is to create a meaningful H₂HNet by 2010.
- **Options:** we developed a lengthy set of financing tools aimed at stimulating both private and public sources of capital to build the H₂HNet
 - The full list of ideas appears as Appendix A
 - Some of the more aggressive ideas, which inevitably generated considerable internal debate, are summarized below
 - These are ideas, not recommendations



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Energy Stations and Utility Involvement in the H₂HNet

- **Hydrogen stored at fueling stations can be used to generate backup or peaking power in utility market regions**
- **Accelerated and increased revenues could improve station economics**
- **Challenge is to attract constructive participation of electric utilities**

Mandates vs. market incentives

Utilities “own the playing field.” Mandates will be difficult to impose, and should be favored only if utilities prove unresponsive to market-based concepts

Market-based idea: use energy stations to raise quality of power in utility markets

Create new uninterruptible rate class for utilities and customers willing to pay a premium for higher quality power

Contract-based rate, with benefits to customers and power generators

Possible integration into existing State initiatives aimed at stimulating distributed generation (DG)



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Energy Taxes

- A gasoline/diesel tax of .25 cents per gallon would raise \$45 million per year for the California H₂HNet
- A carbon tax (on all fuels, including coal, heating oil, natural gas) in the range of .1 cent per gallon equivalent would raise a similar amount.
- Such tax revenues could be used to secure bonding to create an H₂HNet fund in the \$300 million range, sufficient to meet capital and early operating deficits of the H₂HNet
- New energy taxes and/or public bonding will probably require public referendum. Adds complication, but offers the Governor the opportunity to demonstrate his leadership and commitment to the H₂HNet initiative, by taking the issue to the people.



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Mandates on Incumbent Fuel Suppliers

- Perhaps our most controversial idea, clearly opposed by the energy companies, is to mandate that 3% of the state's 10,000 fueling facilities be hydrogen capable by 2010
- Derives from CalEPA permitting authority: Require any fueling facility operator who needs new or extended environmental permits to build or make pro-rata funding contribution to 300 hydrogen stations on a schedule set by the CalEPA Secretary
- Again, an idea, not a recommendation



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Other Ideas

- **State as Market Creator:** Set portfolio standards for the purchase of hydrogen-fueled vehicles for public purposes. Begin with buses and larger fleets.
- **Extend such portfolio standards to private vehicle fleets.**
- **Cost reduction:** Set utility rates for electrolytic hydrogen production at the weighted average cost of wind power, or some other appropriate marginal cost.
- **No fuel tax on hydrogen.**
- **Other Incentives:** Access to HOV lanes, special parking places.
- **Awards:** Cash and/or Governor recognition awards to significant achievement.



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